

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-10 are pending in this application, Claims 1, 9, and 10 having been amended by the present Amendment. Support for amended Claims 1, 9, and 10 can be found, for example, in the original claims, drawings, and specification as originally filed.¹ No new matter has been added.

In the outstanding Office Action, Claims 1 and 3-8 were rejected under 35 U.S.C. §101; Claims 1 and 3-10 were rejected under 35 U.S.C. §102(b) as anticipated by Rai (EP 047956); and Claim 2 was rejected under 35 U.S.C. § 103(a) as unpatentable over Rai in view of Florent et al. (U.S. Patent Publ. No. 2003/0026505; hereinafter “Florent”).

In regard to the rejection of Claims 1 and 3-8 under 35 U.S.C. §101, Applicants note that this claim is directed towards a digital image processing apparatus and recites, *inter alia*, a “color correction module configured to apply varying degrees of color correction....” Thus, Applicants respectfully submit that Claim 1 recites hardware components and is not directed towards functional descriptive material per se. In In re Comiskey, 499 F.3d 1365, 84 U.S.P.Q.2d 1670 (Fed. Cir. 2007) the Federal Circuit held that a claim reciting a system including “a registration module for enrolling” a person, and “an arbitration module for incorporating arbitration language” was statutory under 35 U.S.C. § 101. Similarly, Applicants submit that Claim 1 (and all claims depending thereon) also recites statutory subject matter.

In response to the rejection of Claims 1 and 3-10 under 35 U.S.C. §102(b) as anticipated by Rai, Applicants respectfully submit that amended independent Claim 1 recites novel features clearly not taught or rendered obvious by the applied reference.

¹ See page 6, lines 8-21 of the specification.

Amended independent Claim 1 is directed to a digital image processing apparatus:

... wherein once a first color correction process is performed on a particular pixel, each additional color correction process of said two or more color correction processes with respect to the particular pixel is limited to an extent dependent on a degree by which previous color correction processes in the sequence were applied thereby inhibiting color mapping in respect of loci associated with the previous color correction processes in the sequence.

Page 6 of the Office Action, asserts that the T-matrix multiplier array 1234, shown in Figure 12 of Rai, is equivalent to Applicants' claimed first color correction process and that the alpha mixer 1230, also shown in Figure 12 of Rai, is equivalent to Applicants' claimed second color correction process.

However, Applicants respectfully submit that the alpha mixer 1230 described in Rai is not the same as a "color correction process having ... a *respective associated color mapping operation*" as recited in Claim 1. In Rai, each color correction block 1100n (e.g. color correction block 1100 shown in Figure 12) blends input pixel values with unqualified color corrected values generated by the T-matrix multiplier array 1234 on a pixel-by-pixel basis using the alpha mixer 1230 in dependence upon an alpha qualifier value to generate output pixel values *for that color correction block*.²

In other words, the alpha mixer 1230 described in Rai does not have a respective associated color *mapping* operation because the mixer merely *blends* (i.e. *mixes*) together uncorrected and corrected color corrected values in accordance with hue, saturation, and luminance curves defined by a user (colorist). Therefore, when reading Rai, a person ordinarily skilled in the art would understand that the T-matrix multiplier array 1234 together with the alpha mixer 1230 together form part of *one* color correction block.

Assuming *arguendo*, that the T-matrix multiplier array 1234 and the alpha mixer 1230 of Rai are equivalent to Applicants' first and second color correction processes, the operation

² See Rai at column 10, lines 5-9.

of the T-matrix multiplier array 1234 and the alpha mixer 1230, Rai does not teach or suggest the sequential limitation of subsequent color correction processes in a sequence of color correction processes which is limited to an extent dependent upon a degree by which the previous color correction processes were applied.

In Rai, the alpha qualifier value is generated by multiplying together a hue alpha value α_H , a saturation alpha value α_S , and a luminance alpha value α_Y .³ Each of α_H , α_S , and α_Y are generated using a look-up-table⁴ from respective qualification curves which are defined by the user.⁵ In other words, the alpha qualifier value is indirectly defined by the user rather than being *dependent upon a degree of color correction* by the T-matrix multiplier array 1234.

Additionally, Rai does not describe that each additional color correction process with respect to a particular pixel *is limited to an extent dependent on a degree* by which previous color correction processes were applied. In Rai, the first color correction process (i.e. the T-matrix multiplier array 1234 according to the outstanding Office Action) is always fully applied (unqualified) according to a value derived from a look-up table.⁶ Therefore, Rai does not teach or suggest a first color correction process (where this is interpreted to be the T-matrix multiplier array 1234 in the outstanding Office Action) which has a *degree* of color correction because the T-matrix multiplier array 1234 always applies the full color correction which is then mixed with the relevant input pixels by the alpha mixer 1230 to generate output pixels for that color correction block 1100n.

Applicants' invention advantageously reduces the occurrence of color artifacts when a succession of color correction processes are applied to an image, by limiting subsequent sequential color correction processes to an *extent dependent on a degree* by which the

³ See Rai at column 37, lines 20-22.

⁴ See Rai at column 23, lines 42-56.

⁵ See Rai at column 22, lines 40-43; column 23, lines 15-20; and column 24, lines 40-44.

⁶ See Rai at column 16, lines 43-45.

previous color correction processes were applied. This is neither taught by nor hinted at by Rai. In contrast, the T-matrix array multiplier 1234 and alpha blender 1230 of a single color correction block 1100n in Rai simply cannot be considered to be separate color correction processes, as discussed above. Furthermore, the color correction blocks of Rai (when arranged in series) *may well introduce color artifacts* into portions of video images that have previously been color corrected, if the color correction channels for different color correction blocks overlap. In addition, Rai does not address the problem of how to reduce color artifacts in portions of images *that have previously been color corrected*. Indeed, Rai may well introduce color artifacts in this case and thus Rai teaches away from the claimed invention.

Accordingly, Applicants respectfully submit that amended independent Claim 1 (and all claims depending thereon) patentably distinguishes over Rai.

Amended independent Claims 9 and 10 recite that “once a first color correction process is performed on a particular pixel, each additional color correction process of said two or more color correction processes with respect to the particular pixel is limited to an extent dependent on a degree by which previous color correction processes were applied thereby inhibiting color mapping in respect of loci associated with the previous color correction processes in the sequence.” Thus, Claims 9 and 10 are believed to be patentable for at least the reasons discussed above.

Accordingly, Applicants respectfully request the rejection of Claims 1 and 3-10 under 35 U.S.C. §102(b) be withdrawn.

In response to the rejection of Claim 2 under 35 U.S.C. § 103(a) as unpatentable over Rai in view of Florent, Applicants note that Claim 2 is dependent on Claim 1 and is thus believed to be patentable for at least the reasons discussed above. Further, Applicants respectfully submit that Florent fails to cure any of the above-noted deficiencies of Rai, as

Florent relates to image processing of medical X-ray images and does not describe color correction processes that are sequential.

Accordingly, Applicants respectfully request the rejection of Claim 2 under 35 U.S.C. § 103(a) as unpatentable over Rai in view of Florent be withdrawn.

Consequently, in view of the present amendment, and in light of the above discussion, the pending claims as presented herewith are believed to be in condition for formal allowance, and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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